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Botanical Notes.

Note on Viola pubescens. In connection with the statement concerning Fall-flowering violets made by Mr. A. J. Foerste, on page 267 of the October number of the BULLETIN, it may be interesting to note the occurrence of these late flowers in *Viola pubescens* as well. In this vicinity a small clump of plants of this species has been flowering with more or less perfect and conspicuous flowers at irregular intervals throughout the summer. To-day (Oct. 17th) I have noticed one of the last of these flowers. It is about one-third the size of the early flowers with color and veining distinct. The upper petals are, however, aborted to mere rudiments, while the lateral petals are reduced in size in proportion to that of the lower petal, and project in line with the sepals, rather than expand. All this agrees well with Mr. Foerste's statement above referred to. EDWARD L. RAND.

Stellaria humifusa, Rottb. On a visit to Little Cranberry Island, south of Mount Desert Island, Me., in August last, while crossing a salt marsh my attention was drawn by the vivid green of a few clumps of a Caryophyllaceous plant of a low and compact growth, with ovate, sessile and fleshy leaves. Examination showed it to be the species above named. This locality is, I believe, the most southern one yet recorded. It is an inhabitant of the arctic seas, frequently occurring on the coast of Labrador. Pringle collected it on the south shore of the St. Lawrence one hunred miles below Quebec (BULLETIN, VI, 366). Macoun quotes it from Anticosti Island, and from wet, boggy places on shore of Lake Mistassini; other observers have seen it, though rarely, in New Brunswick. Prof. Goodale collected it on the northern border of Maine on the St. John's, and now we find it on the *coast* of Maine in lat. 44° 15′. J. H. REDFIELD.

Reviews of Foreign Literature.

The Encasing of Protoplasm in reference to the Function of the Cell Nucleus.

This is the title of an article, by G. Haberlandt, in the Journal of the Vienna Academy of Science, in which some peculiar cellulose growths are studied in regard to their probable connection with the action of the nucleus. Klebs succeeded in dividing the protoplasmic body of the cells of certain plants in two halves, one of which contained a nucleus and the other lacked this. This was done by plasmolytic agencies. Haberlandt undertook to find out whether some such action did not take place in certain cases without artificial agency. The first objects of study were the hairs of different Cucurbitaceæ.

In the short hairs of *Bryonia* leaves it was found that frequently in the process of the secondary cell wall thickening, as it is called in Germany, the protoplasmic body was separated in two halves, about equal. The one contained a nucleus, the other was without one. Now, when new cellulose coats were formed, only that part of the protoplasm containing a nucleus was found to participate in this process. Even when the cellulose ring did not form an entire wall, but grew toward the center of the cell so far as to nearly separate the two portions of protoplasm, that portion containing the nucleus had the power of making a new cellulose coat, so as to entirely encase itself from the other half. Also, in hairs whose whole length was covered by a cell wall of nearly uniform thickness, the protoplasmic body was often separated in two unequal portions, by the part holding the nucleus surrounding itself with one or more cellulose coats. This, he says, is exactly analogous to the process occurring in the bast cells of Asclepiadeæ and Apocynaceæ, as described by Krabbe. He traced the same occurrence in the hairs on the under side of the leaves of *Sicyos angulatus* and *Momordica Elaterium*. The encasing in cellulose does not depend on the size of the protoplasmic body, but on its possession of a nucleus.

In the work referred to by Krabbe, the author compares this process of cell-formation within a cell to the formation of ascospores, and in this later work by Haberlandt this view appears to be fully established. The work of Krabbe was done to prove certain theories in regard to the manner of growth of cell wall, and, as such, deserves a separate review. The work of Haberlandt, on the other hand, has special reference to the action of the nucleus in the formation of new membrane. E. L. G.

Capture of insects by Utricularia.

In the "Berichte der Deutschen Botanical Gessellschaft," is an article by M. Büsgen, on the manner and meaning of the capture of insects by *Utricularia vulgaris.*

Experiments were made by feeding plants 15 centimeters long, containing about 15 leaves each, with 6 bladders, with a certain animal, *Chydorus sphæricus.* About 270 of these were fed each plant, and their progress of growth compared with that of other similar plants equally well provided for, except they were carefully prevented from obtaining animal diet. The results proved that the plants fed with animals grew nearly twice as fast as those which were not able to obtain this food.

The manner in which the animals find their way, unassisted, into the bladders is also described. There is nothing specially new in this except, perhaps, the presence of bacteria on the secreting hairs. The lid of the bladder opens by means of the pressure on its surface, and closes quite suddenly, thus capturing the unlucky animal, and, after its death, bacteria proceed to destroy its remains. E. L. G.

Sur les procédés employés par les Japonais pour obtenir des Arbres nains; par M. P. Maury. (Bull. Soc. Bot. d. France, xxxvi. 290-294.)

The Japanese exhibit of dwarfed plants at the Paris Exposition has attracted a good deal of attention. In this article illustrations are given of *Pinus Japonica* one hundred years old; *Ginkgo biloba,* sixty years; *Cephalotaxus,* ninety years, and *Nandina domestica* seventy years old—each of them in ordinary window pots. The method described is the following: The seeds are sown in very small pots, and the young plants allowed to grow till their roots having absorbed all the earth (toute la terre) which they contain, completely replacing it, and escaping in search of a soil more vast. They are then re-potted to others but slightly larger, and the operation is repeated indefinitely. This practice seems to be the most important of those employed by the Japanese horticulturist. Forced in this way to a slow development, by insufficient nourishment and moisture—for even this is deprived them—the trunk is atrophied. Under these circumstances coniferous trees, especially, remain dwarfed in size. To train them into compact and shapely forms, the branches are bound together by bamboo fibres. E. G. B.

Les Plantes Aquatiques Alimentaires. A. Paillieux et D. Bois, (Bulletin Bimensuel de la Soc. Nat. D'Acclimatation de France, December 5, 1888).

In this pamphlet of thirty-one pages the authors treat of the following edible plants: *Aponogeton distachyum* and ten other species of the genus; *Ouvirandra fenestralis; Trapa bicornis, T. bispinosa* and *T. natans*, var.; *Nelumbium speciosum* and *N. luteum*; *Euryale ferox ; Nuphar multisepalum ; Nymphœa Lotus, N. edulis, N. rubra, N. cœrulea* and *N. Rudgeana ; Eleocharis tuberosa ; Sagittaria sagittæfolia, S. Sinensis* and *Œnanthe stolonifera.* Of these the synonyms and common names are given with a short description and notes on habitat, cultivation, uses and geographical distribution. In many cases they have been cultivated or become naturalized in France, and the information given is full and reliable, in others, it is quoted or is meagre. The authors desire for cultivation specimens of *Sagittaria variabilis.* E. G. B.

Histoire d'un nouveau Légume. A Pailleux et D. Bois. (Rev. Sci. Nat. Appl., Nos. 12, 13, 1889).

The tubercles of *Stachys affinis*, Bruge, have been introduced into cultivation by M. Paillieux, who considers them the third new vegetable of the century and has done all in his power to create a demand for them in the market under the name of "Crosnes du Japon." They have been used for pickles and salads and are recommended for invalids and those of delicate digestion, because of the large percentage (.76) of hydro-carbons in the form of galactane. The flavor and nature of these rhizomes seems to be similar to that of the artichoke. The plant is native of eastern Asia and known also as *S. tuberifera.*

Index to Recent American Botanical Literature.

Algæ of Maine—The Freshwater. William West. (Journ. Bot. xxvii. 205–207).

One new species, (*Sphærozosma Aubertianum*), and two new varieties, (*Micrasterias pinnatifida*, Ralfs., var. *trigona*, and *Staurastrum angulatum*, W. West, var. *subangulatum*), are described.

Algæ of the West Indian Region—Catalogue of the Marine. Geo.